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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,427	11/18/2004	Toshiharu Kobayashi	2004 1501A	1786
513 7590 04/16/2008 WENDEROTH, LIND & PONACK, L.L.P. 2033 K STREET N. W. SUITE 800 WASHINGTON, DC 20006-1021				
EXAMINER WYSZOMIERSKI, GEORGE P				
ART UNIT 1793		PAPER NUMBER		
MAIL DATE 04/16/2008		DELIVERY MODE PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/509,427

**Applicant(s)**

KOBAYASHI ET AL.

**Examiner**

George P. Wyszomierski

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2, 4-8 and 10-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-8, 10, 12 and 13 is/are rejected.
- 7) ☒ Claim(s) 11 and 14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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1. The amendment filed January 18, 2008 has been entered. Claims 1, 2, 4-8, and 10-14 are pending.

2. Claims 11 and 14 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim must depend from other claims in the alternative only. The format "as claimed in claim 7 to 10" in claim 11 is improper. Claim 14 depends on claim 11. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

3. Claims 5, 7, 8, 10, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claims 5 and 12 are dependent in part on canceled claims. Clarification is required.

b) Claim 7 recites two different amounts of tantalum in the claimed alloy, i.e. "5.8 percent by weight or less" in line 3, and "4.0 to 6.0 percent" near the end of the claim. As such it is unclear how much tantalum is permitted in the claimed material.

c) Claims dependent upon any of the above are likewise rejected under this statute.

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 7, 8, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Hara et al. (U.S. Patent 5,482,789) in view of Cetel et al. (U.S. Patent 6,007,645).

O'Hara, particularly Table 1 therein, discloses single crystal nickel-base superalloys containing amounts of aluminum, molybdenum, tungsten, rhenium, chromium, cobalt, ruthenium, carbon and boron as recited in instant claim 7. These examples of O'Hara contain more tantalum than indicated by the instant claims, and do not specify the presence of any of the elements recited in instant claim 12. However,

a) The amount of tantalum disclosed and claimed in O'Hara is as low as 5.8 weight % (see claim 1 of O'Hara), i.e. within the presently claimed range. Further, Cetel indicates the conventionality in the art of using as little as 4 weight% tantalum in similar nickel-base superalloys. Thus, the examiner's position is that it would have been well within the level of one of ordinary skill in the art to select alloys having the presently claimed tantalum content from among those disclosed by O'Hara.

b) Cetel further indicates that it was known in the art, at the time of the invention, to incorporate one or more of the elements recited in claim 12, in amounts as presently claimed, in nickel-base superalloys.

Thus, the combination of O'Hara et al. and Cetel et al. would have taught the superalloys as presently claimed to one of ordinary skill in the art.

6. Claims 1, 2, 4-6, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Hara et al. in view of Cetel et al., as above, and further in view of Schweizer et al. (U.S. Patent 4,222,794), Meetham et al. (U.S. Patent 4,459,160),

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Yamazaki et al. (U.S. Patent 4,707,192), Darolia et al. (U.S. Patent 4,849,030), and Ault (U.S. Patent 4,975,124).

The combination of O'Hara and Cetel renders obvious single-crystal Ni superalloys having compositions as recited in the instant claims for reasons as stated supra. O'Hara and Cetel do not specify "directionally solidified" alloys as required by the instant claims. The examiner's position is that it was well-known in the art, at the time of the invention, to produce single-crystal Ni superalloys by directional solidification, as evidenced by any of Schweizer et al. (claim 2), Meetham et al. (column 2, lines 22-28), Yamazaki et al. (column 3, lines 30-34), Darolia et al. (claim 1), and Ault (column 1, lines 9-11). Thus, the claimed directionally solidified alloys would have been obvious from the teachings of O'Hara and Cetel, combined with the knowledge of how single-crystal Ni alloys are made as taught by any of Schweizer et al., Meetham et al., Yamazaki et al., Darolia et al. and Ault.

7. In the response filed January 18, 2008, Applicant alleges that the newly claimed limitations on tantalum content render the instant claims patentably distinct from the prior art, and/or that the carbon and boron content of instant claims 7 and 10 is different from the prior art. Applicant's comments have been carefully considered, but are not persuasive of patentability because:

a) With respect to tantalum, while no specific example of O'Hara contains an amount of tantalum as presently recited, both O'Hara and Cetel indicate an overlap in tantalum amount between the prior art and the invention. The overlap in composition between the prior art and the claimed invention creates a prima facie case of obviousness of the claimed composition, because O'Hara and Cetel disclose the utility of the prior art compositions over their entire disclosed ranges, i.e. the prior art is not limited to the specific examples disclosed therein.

b) With regard to carbon and boron, the table 1 examples of O'Hara contain 0.05% carbon, within the range of claims 7 and 10. While the boron content of these alloys is less than that of claim 10, Cetel claim 1 indicates a boron content as high as 0.01 weight% to be within the purview of the prior art, and O'Hara column 2 indicates a boron content as high as 0.05 atomic% to be within the prior art. Thus, even the boron content of claim 10 is held to have been disclosed by the combination of O'Hara and Cetel.

8. The terminal disclaimer filed on January 18, 2006 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of U.S. patent 6,966,956 has been reviewed and is accepted. The terminal disclaimer has been recorded.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (571) 272-1252. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (571) 272-1244. All patent application related correspondence transmitted by facsimile must be directed to the central facsimile number, (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/George Wyszomierski/  
Primary Examiner  
Art Unit 1793

GPW  
April 11, 2008